Amendment to the Claims:

1. (Currently amended) A magnetic resonance imaging system comprising a reconstruction unit arranged to [[-]] reconstruct a complex image of complex valued pixels from magnetic resonance signals, [[-]] compute a distribution of phase values of the complex image, [[-]] apply a phase correction to the complex image to form a corrected ~~magnetic resonance~~ complex image, and [[-]] ~~control~~ iteratively adjust the phase correction on the basis of the distribution of phase values of the complex image.

2. (Original) A magnetic resonance imaging system as claimed in Claim 1, wherein the distribution of phase values of the complex image is represented by a histogram of the phase values of the complex image.

3. (Currently amended) A magnetic resonance imaging ~~method~~ system as claimed in Claim 2, wherein the phase correction is ~~controlled~~ iteratively adjusted on the basis of a test function of the histogram.

4. (Currently amended) A magnetic resonance imaging system as claimed in Claim 3 wherein the test function of the histogram discriminates[[,]] ~~in particular enhances peaks,~~ peaks in the histogram from broader distributions.

5. (Original) A magnetic resonance imaging system as claimed in Claim 4, wherein the test function is formed by the histogram power function.

6. (Currently amended) A magnetic resonance imaging system as ~~claimed in Claim 1, wherein~~ comprising a reconstruction unit arranged to

reconstruct a complex image of complex valued pixels from magnetic resonance signals,

compute a distribution of phase values of the complex image,

apply ~~the reconstruction unit is arranged to make the phase correction on the basis of~~ a polynomial phase correction to the complex image to form a corrected complex image, said polynomial phase correction being represented by its polynomial coefficients, and

control the polynomial phase correction on the basis of the distribution of phase values of the complex image.

7. (Currently amended) A magnetic resonance imaging ~~method~~ system as claimed in Claim 6, wherein the reconstruction unit is arranged to control the phase correction by adjusting polynomial coefficients of the polynomial phase correction.

8. (Currently amended) A magnetic resonance imaging system as claimed in Claim 3, wherein the reconstruction unit is arranged [[-]] to make the phase correction on the basis of a polynomial phase correction and [[-]] ~~control~~ to iteratively adjust the phase correction by adjusting polynomial coefficients of the polynomial phase correction so as to ~~optimise~~ optimize the test function.

9. (Currently amended) A magnetic resonance imaging system ~~as claimed in Claim 8, wherein~~ comprising a reconstruction unit arranged to reconstruct a complex image of complex valued pixels from magnetic resonance signals, compute a distribution of phase values of the complex image represented by a histogram of the phase values of the complex image, apply a phase correction to the complex image controlled on the basis of a test function of the histogram to form a corrected complex image, and control the phase correction on the basis of the distribution of phase values of the complex image by adjusting polynomial coefficients of a polynomial phase correction so as to optimize the test function, the polynomial coefficients ~~are~~ being adjusted by way of a trial and improve algorithm controlled on the basis of the test function.

10. (Currently amended) A magnetic resonance imaging method ~~wherein~~ comprising:

[[-]] reconstructing a complex image of complex valued pixels ~~is reconstructed~~ from magnetic resonance signals;

[[-]] computing a distribution of phase values of the complex image ~~is computed~~;

[[-]] applying a phase correction ~~is applied~~ to the complex image to form a corrected ~~magnetic resonance~~ complex image; and

[[-]] iteratively adjusting the phase correction ~~is controlled~~ on the basis of the distribution of phase values of the complex image.

11. (Currently amended) A computer ~~programme~~ program comprising instructions to [[-]] compute a distribution of phase values of a complex image, [[-]] apply a phase correction to the complex image to form a corrected ~~magnetic resonance~~ complex image, and [[-]] ~~control~~ iteratively adjust the phase correction on the basis of a test function of the distribution of phase values of the complex image that discriminates whether the distribution is predominated by peaks or by broader structures.

12. (New) A computer program as claimed in Claim 11, wherein the test function is a histogram power function.

13. (New) A computer program as claimed in Claim 11, wherein the test function is selected from the group of test functions f that satisfy the condition $f(h)$ is greater than or equal to h for all h greater than or equal to one.

14. (New) A magnetic resonance imaging system as claimed in Claim 6, wherein the reconstruction unit is arranged to control the phase correction by iteratively adjusting polynomial coefficients of the polynomial phase correction.

15. (New) A magnetic resonance imaging method as claimed in Claim 10, wherein:

the applying of a phase correction includes applying a plurality of different phase corrections to the complex image to form a plurality of different trial corrected complex images; and

the iteratively adjusting of the phase correction includes selecting that trial corrected complex image for which the distribution of phase values is optimized.